

CSUS 300-001
Theoretical Foundations of Sustainability

Spring 2021
Online - Asynchronous

Instructor: Dr. John M. Kerr
Office Location: 325 Natural Resources
Telephone: (517) 449-3193 (c)
E-Mail: jkerr@msu.edu

Student Hours: Given the situation with Covid, I am not setting regular office hours, but I will be happy to meet with you by appointment. I am pretty flexible and normally I'll be able to meet within a day or two. **Please email or text me to set up a time – if you text please include your name.**

Catalog Course Description: Foundations of sustainability theory. History and evolution of interdisciplinary thought about sustainability. Principles of systems thinking as applied to complex problems. Application of theory in community systems.

Course Learning Outcomes:

Students who complete this course will:

1. Demonstrate the ability to frame complex problems from a systems perspective.
2. Distinguish between and connect functional integrity and resource sufficiency as global perspectives on sustainability.
3. Describe and demonstrate understanding of evolutions in the thinking about sustainability in various disciplinary/theoretical contributions (economics, ecology, ethics).
4. Discuss sustainability critically as a wicked problem, drawing from two or more paradigms for sustainability.
5. Explain the importance to sustainability of embracing multiple knowledge cultures/ways of knowing.

In addition, students in this class will practice their ability to communicate clearly and concisely in short written and verbal statements; provide constructive review of each other's work; and work in teams to think critically and communicate respectfully.

The main course outcomes listed above support the Department of Community Sustainability undergraduate program competencies for our three majors of critical thinking, systems thinking, and ethics. Successful completion of this course provides students with the background needed to frame complex problems and address them systemically in order to successfully complete additional courses in the major. Students can learn more about the Department of Community Sustainability undergraduate program competencies at

https://www.canr.msu.edu/csus/undergraduate/undergraduate_courses#Sustainability-Core.

In addition, this course supports Michigan State University's Undergraduate Learning Goals of analytical thinking and integrated reasoning. More information about MSU's Undergraduate Learning Goals is available at <http://learninggoals.undergrad.msu.edu/>.

Course Overview: As the title implies, this course will introduce students to some bodies of theory that provide foundations for understanding, pursuing practical objectives, and researching new approaches regarding sustainability. Sustainability is generally understood to require integration of theory and methods from a number of different scientific disciplines. Our approach is to suggest that two paradigms guide sustainability science today. One is grounded in the debate over limits to economic growth and the indefinite expansion of resource utilization implied by global economic development and increasing human population. Another is grounded in both social and environmental scientists' growing understanding of the fragility and vulnerability of the socio-technical and ecological systems on which human beings depend. These paradigms are not unrelated. Both have been influenced by the development of general systems theory since World War II. But the first, which we will call **resource sufficiency**, understands systems as engines that generate useful products and services, while the second, which we will call **functional integrity**, sees systems as having intrinsic value, or at least as being important in and of themselves. A possible third way lies in *process-oriented adaptations* of systems theory: the emphasis is on using systems thinking to better engage and respect participants and affected parties. The course will emphasize the role of systems thinking and stock and flow systems modeling as it has been developed for applications in economics, ecology, and natural resource management. Sustainability modeling will be discussed in connection with views on the role and function of scientific models, on the one hand, and ethical worldviews, on the other. Students will learn to develop non-quantitative stock and flow models of systems and to discuss how system structure does and does not contribute to the sustainability of the system in question.

Course Methods: We will rely heavily on reading and (virtual) discussion of materials that articulate and analyze the key theoretical concepts and perspectives noted above. We will also use case studies as ways to both motivate and explore the implications of different theoretical approaches to sustainability. In addition, a series of in-class exercises will demonstrate complexities of key systems. Student performance will be evaluated in accordance with the activities discussed below under **Grading**.

Required Materials:

Book: Meadows, D. 2008. *Thinking in Systems: A Primer*. White River Junction, VT: Chelsea Green Publishing.

There is also a required film, *Boom, Bust, Boom*, that as of the start of class is available to watch free of charge, but there is some chance that it will be pay-per-view.

The book by Meadows will be supplemented with articles and reports posted on the CSUS 300 Desire to Learn (D2L) site (<https://d2l.msu.edu>)

Course Structure:

This course will be delivered online, asynchronously through MSU's D2L course management system. You will need your MSU NetID to login to the course from the D2L homepage (<http://d2l.msu.edu>). All materials will be available on the course D2L site. The D2L site will describe the flow of the class, which revolves around course readings, short video lectures and discussion boards.

Although the course is taught in an asynchronous format, it is paced just like a regular in-person course. It is divided into units that are analogous to course meetings as if we were meeting in person on a regular basis. **Assignments will be due nearly every Tuesday, Thursday and Sunday.**

In addition, the course midterm and final will be team-based and will require several synchronous meetings with your team members. Teams will be assigned early in the course.

Technical Assistance:

If you need technical assistance at any time during the course or to report a problem you can:

- Visit the [Distance Learning Services Support Site](#)
- Visit the [Desire2Learn Help Site \(http://help.d2l.msu.edu/ \)](http://help.d2l.msu.edu/)
- There is a self-paced course for students to learn to use D2L; it works well as a reference page even if you don't take the course: [Students - Getting Started with D2L Self-enrollment Page](#)
Or call MSU IT Help at (517) 432-6200, or Distance Learning Services (517) 355-2345.
(NOTE: The IT Help line is extremely helpful – definitely call them if you are having trouble. They are almost always open.)

Grades (all assignments and exams will be submitted electronically through D2):

<u>Grading Scale:</u>	Grade	Percentage
	4.0	93 - 100%
	3.5	87.5 - 92.9%
	3.0	82.5 - 87.4%
	2.5	77.5 - 82.4%
	2.0	72.5 – 77.4%
	1.5	67.5 – 72.4%
	1.0	62.5 – 67.4%
	0.0	under 62.4%

Assessment:

Participation:		
Written discussion posts	100 points	20%
Video posts (Flipgrid)	100 points ¹	20%
Homework	100 points	20%
Midterm Examination	100 points	20%
Final Examination	100 points	20%
Total	500 points	100%

¹ Due to an idiosyncrasy in the D2L gradebook, the written and video discussion board posts do not add up to 100 points each. But they are still each worth 20% of the total grade in the course. The relevant score for you in these gradebook categories is your overall percentage, not the overall number of points. Please let me know if you have questions.

Written and video discussions (200 points possible):

It is possible to obtain nearly full credit simply by trying hard.

Nearly all units will contain a written or video discussion board assignment and participation in every discussion board is required. The default is that you must post a new discussion thread and respond to at least two other threads, but please see the specific instructions for each discussion board assignment. Posts should normally be in the range of 100-200 words.

The advantage of the discussion board assignments is that all that is required to do well is effort. Whereas 100% credit on each assignment requires excellent performance, it is possible to get 90% simply from putting forth a good effort, even if some of the details aren't quite right. Think of it as an opportunity to learn. For example, if viewing other people's posts helps you gain new insights, you may express those insights in responses to other posts or even in a response to your own post.

Posts must be submitted on time. Be respectful and constructive in all posts. Posts should normally be in the range of 100-200 words, and posts of less than 50 words will not be counted as real posts. All posts must be your own words (no pasting blocks of copied text)!

Flipgrid is the platform we will use for video-based student discussion. Flipgrid assignments will work the same as written discussion boards, but with recorded oral presentations on video as opposed to written posts. Responses to others' posts also work the same way. Grading criteria will be the same as for written discussion posts.

Homework (100 points possible or 20% of the course grade): Homework is individual written work; it consists of five equally weighted assignments worth 20 points each. Homework assignments will be posted on D2L and submitted through D2L. The main difference between discussion posts and homework assignments is that there are not as many homework assignments, they are strictly individual, and each one is worth a higher percentage of the overall grade.

Assignment due dates and times will be clearly listed on D2L. All assignments are due at midnight on the day specified. (Assignments turned in late at night after midnight will be considered on time since I won't look for them before morning anyway.)

Late policy: Scores of all assignments will be reduced by 10% of the total available points for each day that they are late. Assignments submitted more than three days late will not be accepted, with the exceptions listed below (Oops tokens).

Oops tokens: Every student will have up to three unexcused late assignments, no questions asked. (You use an oops point each time you submit something late.) If you turn an assignment in late, please alert me by email so that I know to look for it. Oops tokens can be used for homework assignments, discussion boards (written and video), and quizzes. I will keep track of how many you have used. Students who do not use any oops tokens will earn extra credit at the end of the semester.

Schedule for assessment and feedback: Normally I will aim to assess assignments the day after they are due. For written and video discussion boards, I will view all the submissions but I will not comment on all of them. Also, in many cases an initial post is due on a certain date and then peer review of others' posts is due 2-3 days later. In such cases I will make public comments on some posts prior to the initial

due date, and I will assess the submissions the day after the peer reviews are due. In some cases my schedule will not allow me to assess all the submissions the day after the due date, but I will always aim to do them shortly after that.

Midterm and Final Exams (100 points each or 200 points combined): There will be two exams, each worth 20% of the total course grade or 100 points. Both exams will take the form of a team-based oral exam. A team-based oral exam is useful because it encourages practicing teamwork and critical thinking, both of which are important skills in future workplaces.

The mid-term will take place in mid-March and the final during finals week in April. They will be scheduled at a time that works for the entire team of about five students. Teams will be formed early in the semester based on best practices for designing productive student teams, and there will be opportunities for regular feedback to the instructor to help assure that teams are functioning well. There will be a practice oral exam prior to the real thing so that students know what to expect and get feedback on how they can improve their performance. 75% of the grade will be group-based, and 25% will be individual. Details about the exam and how it is assessed are on D2L under the tab called Collaborative Oral Exams.

Important dates

Last day to drop with refund (8:00pm): 2/12/2021. Last day to drop with no grade reported (8:00pm): 3/10/2021.

Course Schedule

All the assignment due dates in the course are listed in D2L in the checklist in each unit. They are also available in the table below. Assignment details are all in D2L. **NOTE:** the chances are high of an occasional inconsistency between the syllabus and D2L. Please follow the dates listed in D2L. (Don't worry, I will never hold you responsible if you have a date wrong due to my mistake.)

CSUS 300 calendar of due dates by unit. (Please defer to D2L in case of inconsistencies)

Unit #	Title	Assignments		
		Discussion board	Flipgrid	Homework
	Start Here (Introduction)	Sustainability behavior important to you. Due Tuesday, Jan 19.	Introduce yourself. Due Tues Jan 19.	
Distribute CATME survey: Tues Jan 19				
1	Origins of sustainability	Definitions of sustainability. Due Thurs Jan 21.		
Return CATME survey: Sunday, Jan 24				
2	What we are looking for in sustainability		Your interests regarding PBs or SDGs. Due Sun Jan 24. Review someone else's by Tuesday, Jan 26.	

3	Theory, Paradigms, Heuristics	No assignment		
4	Wicked problems		Transporting oil. Due Thurs Jan 28. Also review at least two others, due January 31.	
Exam teams choose their midterm exam date and final exam date: Sun, Jan 31. Also schedule team meeting dates.				
5	Dust Bowl, Ogallala	Dust bowl and Ogallala. Tues, Feb 2. Also review at least two others, due the same day.		
6	Systems thinking basics	Practice drawing system diagrams. 1 st draft due Sun Feb 7.		
7	Systems thinking details	Practice drawing system diagrams. First draft due Thu Feb 11; improved draft due Sun Feb 14.		HW1: diagram a nonmaterial stock with feedback. Due Sun Feb 14
Submit 1 st exam progress report form: meeting dates. Sun Feb 14				
Return early-semester course evaluation form – make it for extra credit. Sun Feb 14				
8	Systems resilience		Examples from Powell. Initial post due Tues Feb 16. Follow up due Thurs Feb 18	
9	Systems thinking archetypes		Identify system archetypes in related to fossil fuels. Due Sunday, Feb 21. Review two others Feb 23	HW2: Newfoundland fishery and systems archetypes. Due Tuesday Feb 23
Submit exam progress report form: choose questions to answer (draft). Sunday, Feb 21				
10	Systems leverage points	Leverage points exercise. Due Thurs Feb 25. Review two others and update your own by Sunday, Feb 28.		
Submit CATME self-assessment and teammate assessment survey. Sunday, Feb 28				
Submit exam progress report form. Sunday, Feb 28				
No classes Tues-Wed, March 2-3.				
11	Ways of knowing		Guadalupe raccoons. Due Thu, Mar 4. Comment on at least two others by the same day.	
Oral exam: the week of March 8. Includes a practice exam Monday or Tuesday and the real exam Thursday or Friday. No assignments the weekend before or the weekend after.				
Exam self-assessment form due immediately after the exam.				
Mid-semester course evaluation		Date to be determined		
12	Ecology 1	Yellowstone wolves. Due Tu, Mar 16. Comment and improve your own by Th Mar 18		
13	Ecology 2		Isle Royale. Due Sun Mar 21 Comment and improve your own by Tue Mar 23	Ecology HW 3 due Tues March 23.

Exam teams confirm their final exam date: Sun March 21				
14	Economics 1		Capital types. Due Thu Mar 25 Comment and improve your own by Sun Mar 28	
15	Economics 2	Steps to improve well-being. Due Tu Mar 30. Comment on others by Thu Apr 1		GDP homework 4 due Thu Apr 1.
16	Ethics		Ethical frameworks. Due Sun Apr 4. Comment and improve your own by Tue Apr 6.	
17	Resource sufficiency	Human welfare stock and flow. Due Thu Apr 8 Comment by Sun Apr 11.		
18	Functional integrity	Boom Bust Boom. Due Tues Apr 13 Comment on others by Thu Apr 15		Leopold homework 5 here. Due Thu Apr 15
19	Competing/ complementary paradigms		Revisit human welfare stock and flow. Due Sun Apr 18 Comment on others by Tues, Apr 20	
No classes starting Thursday, April 22. So last assignment is due Tues, Apr 20				
Final exam (collaborative oral exam). Your team can choose any time during the week of Monday, April 26. Practice exam is optional; please let me know if you would like to schedule a practice exam.				
Exam self-assessment form due immediately after the exam.				

Expectations:

Citations and References: Cite your work as appropriate in your homework and written discussion board assignments. All sources of information, data, facts, or ideas presented in written work should be cited in the text, and a list of all cited references should be provided at the end of your document. Reference information must include the author's full name or names, the title, the publication name (e.g. if it is a journal article, which journal?), and the year of publication. Be sure to be consistent in your citation style. If you want to practice being professional, use the APA format. A good reference site for APA style, including a tool for automatically formatting in APA, can be found at <https://owl.english.purdue.edu/owl/resource/560/01/>. Also, you can automatically format in APA using a reference manager software like Zotero, Mendeley or Endnote, and you can download citations in APA style from Google Scholar. (This is the easiest way to be sure to cite correctly.)

Accommodations for Students with Disabilities: Michigan State University is committed to providing equal opportunity for participation in all programs, services and activities. Requests for accommodations by persons with disabilities may be made by contacting the Resource Center for Persons with Disabilities at 517-884-RCPD or on the web at rcpd.msu.edu. Once your eligibility for an accommodation has been determined, you will be issued a Verified Individual Services Accommodation ("VISA") form. Please email this form to me during the second week of class and/or two weeks prior to the accommodation date (test, project, etc.). Requests received after this date may not be honored.

Academic Integrity: [Article 2.III.B.2](#) of the Academic Freedom Report states: “The student shares with the faculty the responsibility for maintaining the integrity of scholarship, grades, and professional standards.” In addition, the Department of Sustainability adheres to the policies on academic honesty specified in General Student Regulation 1.0, [Protection of Scholarship and Grades](#); the all-University Policy on [Integrity of Scholarship and Grades](#); and [Ordinance 17.00](#), Examinations.

Therefore, unless authorized by your instructor, you are expected to complete all course assignments, including homework, tests and exams, without assistance from any source. You are expected to develop original work for this course; therefore, you may not submit course work you completed for another course to satisfy the requirements for this course. Also, you are not authorized to use the www.allmsu.com web site to complete any course work in this course. Students who violate MSU regulations on Protection of Scholarship and Grades will receive a failing grade on the affected assignment. A second violation will result in a failing grade for the course. Note that all submitted work will be processed through Turnitin.com via the D2L site.

Instances of plagiarism constitute academic dishonesty and will result in a grade of zero for the assignment in which plagiarism occurs. See <https://www.msu.edu/unit/ombud/academic-integrity/plagiarism-policy.html> for a definition and discussion of plagiarism.

Faculty members are required to report all instances in which a penalty grade is given for academic dishonesty. Students reported for academic dishonesty are required to take an online course about the integrity of scholarship and grades. A hold will be placed on the student's account until such time as the student completes the course. This course is overseen by the Associate Provost for Undergraduate Education.

Spartan Code of Honor: *“As a Spartan, I will strive to uphold values of the highest ethical standard. I will practice honesty in my work, foster honesty in my peers, and take pride in knowing that honor is worth more than grades. I will carry these values beyond my time as a student at Michigan State University, continuing the endeavor to build personal integrity in all that I do.”*

You can find more about the Spartan Code of Honor at <https://www.deanofstudents.msu.edu/academic-integrity>.

Diversity Equity and Inclusiveness: Diversity, Equity and Inclusion are important, interdependent components of everyday life in the College of Agriculture and Natural Resources (CANR) and are critical to our pursuit of academic excellence. Our aim is to foster a culture where every member of CANR feels valued, supported and inspired to achieve individual and common goals with an uncommon will. This includes providing opportunity and access for all people across differences of race, age, color, ethnicity, gender, sexual orientation, gender identity, gender expression, religion, national origin, migratory status, disability / abilities, political affiliation, veteran status and socioeconomic background. (See the full CANR statement: <https://www.canr.msu.edu/news/canr-statement-on-diversity-equity-and-inclusion>)

Michigan State University is committed to ensuring that the bereavement process of a student who loses a family member during a semester does not put the student at an academic disadvantage in their classes. If something comes up during the semester that impedes your ability to get your work done on schedule, please alert me and I will help you figure out a schedule that works for you. Beyond this, if needed you may complete the “Grief Absence Request” web form (found at

<https://www.reg.msu.edu/sitemap.aspx?Group=7> under Student resources - Forms). I will work with you to make appropriate accommodations so that you are not penalized due to a verified grief absence.

If you find yourself having trouble with readings, feel free to contact the instructor for a consultation, but also consider making use of the MSU Learning Resource Center: <https://nssc.msu.edu>. Many students who are accustomed to scanning webpages need to develop better reading skills and the Learning Resource Center can help.

General College and University Policies: All other general college and university policies applicable to this course are available at <https://www.canr.msu.edu/academics/courses/policies>. Please review these policies. Topics covered in these general policies include:

- Students with disabilities, Resource Center for Persons with Disabilities (RCPD) and accommodations
- Student rights under the family educational rights and privacy act (FERPA)
 - Student release authorization form
- Religious holiday policies
- Grief absence policies
- Students in distress policies
- MSU student athlete policies
- Course add-drop policies
- Honors options
- Course Management system policies
- Final exam policy and attendance
- Grade dispute policies
- Academic honesty and integrity, plagiarism, and disciplinary procedures
- Disruptive behavior
- Harassment and discrimination policies
- RVSM University reporting protocols
- Limits to confidentiality
- Social media policy
- Web accessibility policies
- MSU Code of Teaching Responsibility
- SIRS
- Commercialization of lecture notes
- University Learning Goals